

## **EXPLORING THE NEXUS BETWEEN ENERGY EFFICIENCY AND STRUCTURAL CHANGES IN ROMANIA'S MANUFACTURING INDUSTRY**

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### **Abstract**

The recent geopolitical upheavals have significantly impacted manufacturing, with volatile energy prices disrupting firms' cost structures and competitiveness. In this context, assessing the readiness of Romania's manufacturing sector structure to face these geopolitical challenges is crucial. The present paper explores the nexus between energy efficiency and structural changes in Romania's manufacturing industry over the past two and a half decades, analyzing the dynamics of energy consumption and efficiency. The analysis shows that structural changes were crucial in decreasing energy consumption, as the manufacturing activities with the lowest energy efficiencies underwent the most significant output reductions. Moreover, the evolution of investment intensities in the manufacturing industry activities reflects both the sectors that have undergone successful restructuring and those that have proven attractive to investors. In terms of structural breaks, the results of the Bai-Perron (2003) test conducted on the output of the manufacturing activities revealed that the activities identified as the most energy-efficient, such as the Manufacture of furniture; other manufacturing, and the Manufacture of machinery and equipment not elsewhere classified (n.e.c.) also exhibit a considerable number of structural breaks.

### **Keywords**

Manufacturing activities, energy efficiency, structural changes, Bai-Perron test

### **JEL Classification**

L16, L60

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